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IN THE CLAIMS:

Amend the claims as follows.

Claims 1-4 (Canceled).

5. (Allowed) An isolated polypeptide comprising a sequence of no more than 700 consecutive amino acids of a type F botulinum toxin sequence, which comprises a sequence of amino acids selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO: 1)

(b) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO: 3), and;

(c) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO: 4).

6. (Allowed) An isolated polypeptide comprising a dimer of a polypeptide comprising no more than 700 consecutive amino acids of a type F botulinum toxin sequence, which comprises a sequence selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO: 1)

(b) amino acids 848-991 of a type F botulinum toxin (SEQ ID NO: 2).

(c) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO: 3), and

(d) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO: 4).

7. (Currently) A polypeptide composition comprising:

(1) an isolated polypeptide according to claim 5; and

(2) an isolated polypeptide that facilitates or enhances purification ~~polypeptide~~ of the polypeptide of (1).

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4 8. (Currently Amended) An isolated fusion protein comprising a sequence of 2 V amino acids selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, ~~SEQ ID~~ and SEQ ID NO:4, fused to a polypeptide that facilitates or enhances purification.

5 ~~8~~. (Previously Amended) A fusion protein according to Claim 4 ~~8~~ wherein said polypeptide that facilitates or enhances purification is a polypeptide that binds a chromatography column.

6 ~~10~~. (Previously Amended) A fusion protein according to Claim 5 ~~9~~ wherein said chromatography column is an affinity chromatography column.

7 ~~11~~. (Previously Amended) A fusion protein according to Claim 4 ~~8~~ which comprises SEQ ID NO:1 fused to a purification moiety.

8 ~~12~~. (Allowed) A vaccine comprising a pharmaceutically acceptable carrier and a polypeptide V comprising no more than 700 consecutive amino acids of a type F botulinum toxin sequence, which comprises a sequence selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO:1),

(b) amino acids 848-991 of a type F botulinum toxin (SEQ ID NO:2),

(c) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO:3),

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and

(d) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO:4).

13. (Allowed) A recombinant DNA encoding a polypeptide according to claim 1.

14. (Previously Amended) A method of producing a polypeptide according to claim 4 comprising the steps of:

(a) expressing in a host cell a DNA encoding a fusion protein according to claim 4;

(b) obtaining from said host cell an extract comprising the fusion protein, and

(c) purifying the fusion protein using a chromatography column.

15. (Previously Amended) A method according to claim 10 wherein the fusion protein is removed from the column by elution with a substrate.

16. (Previously Amended) A method according to Claim 10 further comprising cleaving the fusion protein and retaining the toxin fragment.

17. (Currently Amended) A method of making a pharmaceutical composition comprising:

(a) expressing in a host cell a DNA fragment encoding a fusion protein according to claim 4;

(b) obtaining from said host cell an extract comprising the fusion protein,

(c) purifying the fusion protein using a chromatography column, and

(d) incorporating the purified fusion protein into a pharmaceutical composition.

16. (Currently Amended) A method according to Claim 17 wherein ~~said~~ the fusion protein comprises a purification moiety that binds to an affinity chromatography column.

19. (Previously Amended) A pharmaceutical composition comprising a fusion protein according to claim 8, and

a pharmaceutically acceptable carrier.

Claim 20 (Canceled).

21. (Previously Amended) A pharmaceutical composition according to Claim 19 wherein the fusion protein comprises a polypeptide that binds to an affinity chromatography column.

Claims 22-24 (Canceled).

25. (Previously Amended) A recombinant DNA encoding a fusion protein according to claim 8.

Claims 26-29 (Canceled).

18 30. (Currently Amended) The fusion protein of claim 8 wherein the sequence of amino acids is ~~(1) is at least one amino acid sequence~~ selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 3, and SEQ ID NO: 4.

Claim 31 (Canceled).

19 32. (Allowed) A method of producing antibodies in a mammal against botulinum toxin, comprising administering to said mammal a vaccine according to claim 12.

7 33. (Previously Amended) A method of producing antibodies in a mammal against botulinum toxin, comprising administering to said mammal a composition of claim 15.

21 34. (Allowed) A method of vaccinating a mammal against a botulinum toxin, said method comprising administering to said mammal a polypeptide comprising no more than 700 consecutive amino acids of a type F botulinum toxin sequence, which includes a sequence selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO:1)

(b) amino acids 848-991 of a type F botulinum toxin (SEQ ID NO:2)

(c) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO:3), and;

(d) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO:4).

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35. (Allowed) A method according to claim 34 wherein the said sequence is fused to a polypeptide that facilitates or enhances purification.

36. (Allowed) A method according to claim 34 wherein said polypeptide comprises no more than 500 consecutive amino acids of a type F botulinum toxin sequence.

37. (Allowed) A method according to claim 34 wherein said polypeptide consists of a sequence of amino acids selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO:1)

(b) amino acids 848-991 of a type F botulinum toxin (SEQ ID NO:2)

(c) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO:3), and;

(d) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO:4), which sequence is optionally fused to a polypeptide that facilitates or enhances purification.

38. (Allowed) A method according to claim 37 wherein the polypeptide consists of SEQ ID NO:1.

39. (Allowed) A method according to claim 34 wherein the polypeptide is in the form of a dimer.

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~~40~~ 37. (Allowed) An isolated polypeptide consisting of amino acids 848-991 of a type F botulinum toxin (SEQ ID NO:2) optionally fused to a polypeptide that facilitates or enhances purification.

~~41~~ 38. (Allowed) A recombinant DNA encoding a polypeptide according to claim ~~40~~ 37.